Lake Winnebago 2011 Winter Drawdown Conference Call Minutes

Introduction: The U.S. Army Corps of Engineers (USACE), Detroit District held its annual Lake Winnebago drawdown conference call on January 6, 2011. Mr. John Allis, Chief of the Watershed Hydrology Branch for the Detroit District USACE, opened the call at approximately 9:00am (C.S.T.), with a roll-call of attendees. Approximately 15 agencies/users participated.

Presentation of Agenda: Mr. Allis began the call by presenting the agenda. This included a discussion on the basin's current and expected winter conditions, drawdown timing and extent, and an open discussion.

Basin Conditions and Significant Events: Mr. Allis stated that the USACE strategy was to lower the lake to 2.2 ft. (OD) by December 1 as agreed to at the October 2010 Regulation Meeting. Mr. Allis reported that the basin experienced an usually "wet" summer so the lake level was a bit higher than normal at the beginning of the drawdown. For consideration of the environment and ecosystem, it was determined that maintaining a slow and steady drawdown was more important than constantly changing outflows to achieve a specific level on a specific day. He then outlined the meteorological events that had occurred since the October 2010 regulation meeting.

October

October was relatively dry until the last week when nearly 2 inches of rain fell across the basin causing inflows to spike above 10,000 cfs for a few days. The Corps wanted to prevent the lake from rising so the gate setting went from 3.5 gates open to 7 gates open to pass the high flows.

November

November was abnormally dry; Oshkosh received only 33% of its average precipitation. The basin typically receives about 4 inches of snow, but there wasn't any measurable snow in the basin this November. During the month, outflows averaged between 4,500 cfs and 6,800 cfs which was a little higher than normal due to the residual inflows from the end of October rain events. With the overall dry conditions in the fall, the lake hit 2.20 ft on November 22 which was about a week and a half early.

December

December started out cold. By the second week, daytime highs were in the teens, which is 15-20 degrees below normal. Daytime high temperatures got above freezing only a handful of days in December. The first big snow occurred on December 11th with nearly 10 inches of snow recorded basin wide. At the end of the month, temperatures jumped into the 40s and near 50 degrees causing much of the snowpack around the lake to melt. Throughout December, the lake level held relatively steady around 2.06 ft. This was the lowest average December lake level over the past 10 years and was an intentional regulation strategy to keep a lower level as solid ice cover was forming early due to the low temperatures. Similarly,

outflows were slightly below normal averaging between 2,000 cfs and 3,000 cfs for the month. Typically, December outflows range from 3,000 cfs to 4,000 cfs.

After providing an update of the basin conditions since the regulation meeting, Mr. Allis asked the audience if there were any comments regarding the lake level over the past several months.

Mr. Hitchcock thanked Mr. Allis for providing copies of the Revised Facts Book. He stated that the Facts Book does not discuss the water level impacts of municipal water withdrawals from Appleton, Oshkosh, Neenah and Menasha. Mr. Hitchcock asked what effect the municipal water withdrawals (including Fond du Lac) had on the lake level during drought conditions. David Patek from the City of Oshkosh noted that the City of Fond du Lac does not have a surface water plant. Fond du Lac gets its water from wells. Ms. Strum explained that although withdrawal rate of several million gallons per day sounds like a large amount of water, it is negligible compared to the amount of water that flows freely over the spillways at Neenah and Menasha. For example, during periods of low flows conditions (about 2,500 cfs outflow), the municipal water withdrawal is about 1% of the total outflow from Lake Winnebago. On average, much more water is lost from the lake to evaporation than to municipal water withdrawals.

Mr. Allis proceeded by explaining the snow pack and ice cover conditions that had developed across the basin. This year, ice started to build at the end of November which was 2 weeks earlier than last year. By December 3, ice cover was established on the upper lakes as well as Lake Winnebago. This is a few days earlier than previous years, but within an acceptable range. Mr. Allis then asked Art Techlow from the Wisconsin DNR and Mr. Brian Hahn from the National Weather Service to provide updates of current basin conditions.

Current Conditions: Mr. Techlow reiterated that as of December 3, the upper lakes and Lake Winnebago were ice covered. As of January 3, after the holiday warm up, the ice thicknesses varied from 8”-14” with an average of about 10”-11”. By now, he expects the thicknesses are around 12” due to the extremely cold temperatures the past few days. Mr. Hahn said that near the lake, there is approximately 1” – 4” of snow left on the ground. Near the headwaters of the Wolf River, there is approximately 4: - 8” of snow and near the headwaters of the Upper Fox River, there is about 2” – 4” of snow. Across the basin, there is only 0.1” to 1.7” of snow water equivalent and frost depths range from 4” – 21”.

Expected Conditions: Mr. Hahn stated that the week ahead could bring some snow showers, but no major systems are on the horizon. Normal high temperature is 24 degrees and the average low is 7 degrees. Near average temperatures are expected in the coming week. Mr. Hahn also noted that Green Bay received about 24” of snow since December 1 which is a little bit above normal. Temperatures recorded at Green Bay have been a little below average since December 1. The long range forecasts indicate that temperatures and precipitation will be near normal for the remainder of January. The three month forecasts point to below average temperatures and above average precipitation.

Proposed Strategy: Mr. Allis suggested that, as in previous years, the USACE current plan of action would be to gradually draw down the level of Lake Winnebago to the crest of the Menasha Dam, which is 1.68 ft. (OD) by March 1, 2011. The purpose of the drawdown is to accommodate the additional runoff from the spring melt and help facilitate a more gradual release of outflows into the Lower Fox River. Presently, he noted that there are 3 tainter gates open at the Menasha dam and 0 gates open at the Neenah dam. Outflows with these gate settings are about 3,600 cfs. He mentioned that to hit a target of 1.68 ft by March 1, an outflow about 400 cfs - 500 cfs greater than the inflows would need to be maintained, so 0.5 a gate would most likely be opened tomorrow. If typical basin conditions persist, expect outflows in the Lower Fox River to range from 3,000 cfs – 4,200 cfs for the drawdown period. Once the 1.68 ft target is achieved, the Corps intends to hold the lake steady until ice is out later in the spring time. Mr. Allis reminded participants that the Corps will continue to post ice updates to our website as done in the past. He then asked if there were any comments on the proposed strategy.

Mr. Mike Pedersen from Kaukauna Utilities said that he appreciates the steady flows in the Lower Fox River and doesn't want to see a quick drawdown.

Open Discussion: Prior to opening the discussion for general comments, Mr. Allis noted that the revised Facts Books were mailed out over a month ago. He asked if anyone on the call would like a copy or need additional copies, please email him their information. He asked if there were any questions or comments on the contents of the Facts Book. After a long pause, he then opened up the call to the participants for general discussion. Their various comments and the USACE responses are as follows:

Mr. Bob Starks from the Fox River Navigation Authority asked what the maximum outflow would be required in order to take 1"-3" off the lake level. For instance, he had heard that it would take about 7 days to lower the lake level 3". Ms. Strum explained that the maximum outflow that can be discharged depends on the lake level and inflows. When the lake level is above 3.30 ft, as it was in the spring of 2004, outflows can reach as high as 16,000 cfs from the Neenah and Menasha dams. This outflow includes opening all of the needle gates at the Neenah dam which causes flooding in the paper mill. Mr. Bob Stanick from the Fox River Sub Office added that the downstream capacity of the Lower Fox River dams is often more limiting than the capacity of the gates at the Neenah and Menasha dams. This past summer, the local tributaries into the Lower Fox River were swollen due to heavy rains in the immediate area. This additional local inflow limited the amount of water that could be discharged from Lake Winnebago. Mr. Stanick also reminded participants that there is active construction occurring on several of the Lower Fox River dams which is also limiting the outflow capacity.

Ms. Strum then explained that the maximum discharges typically occur in the spring when inflows are typically at their maximum, so the ability to lower the lake level is also limited by the inflows into the lake. Despite these additional factors that affect the lake level, about 6,000 cfs more than outflow would need to be discharged above inflows to

lower the lake level 1” in a day. This discharge is a general rule of thumb and is heavily dependent on several factors.

There were no further questions from the participants so Mr. Allis ended the conference call at approximately 9:40 AM (C.S.T.) and thanked participants for their input. He noted that our spring refill call will occur sometime in April to discuss the National Weather Service Outlooks and strategy for refilling the lake. Mr. Allis provided his email address which is john.t.allis@usace.army.mil. Participants were encouraged to visit the Corps’ website for more information on water levels, flows, and meeting notices. The website address is: www.lre.usace.army.mil/glhh/winnebago.